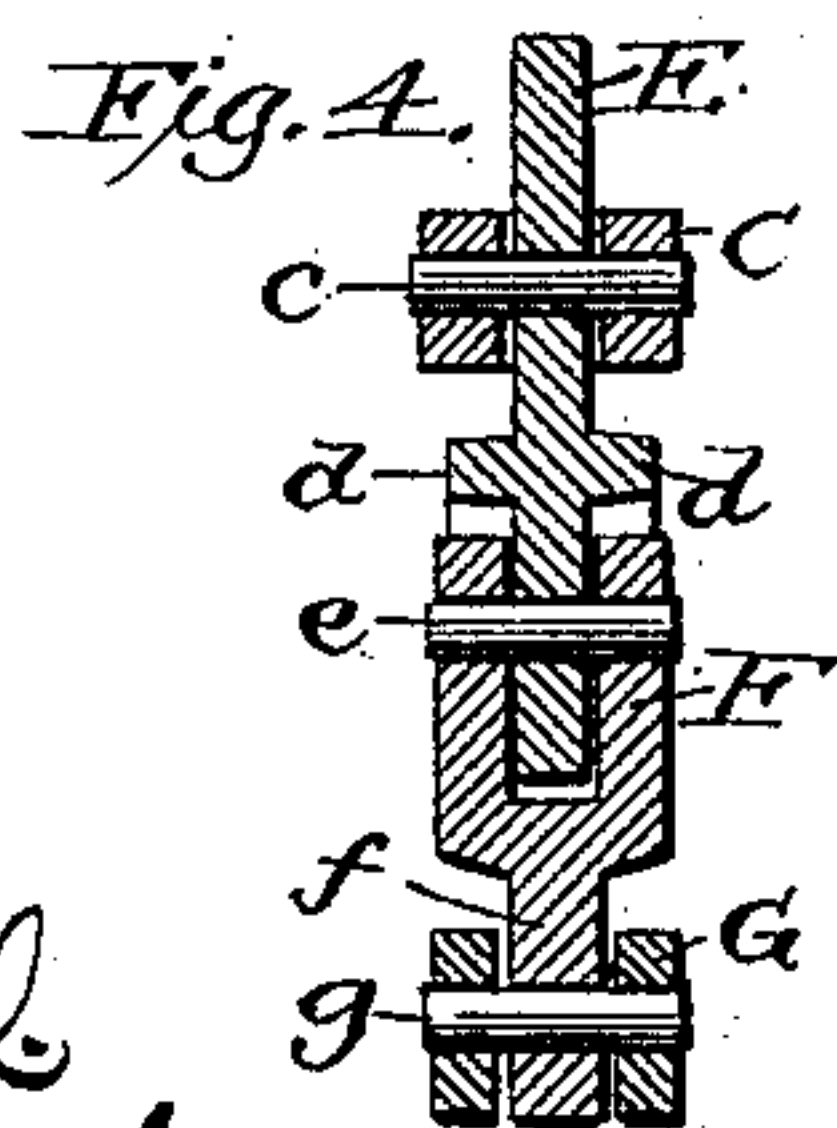
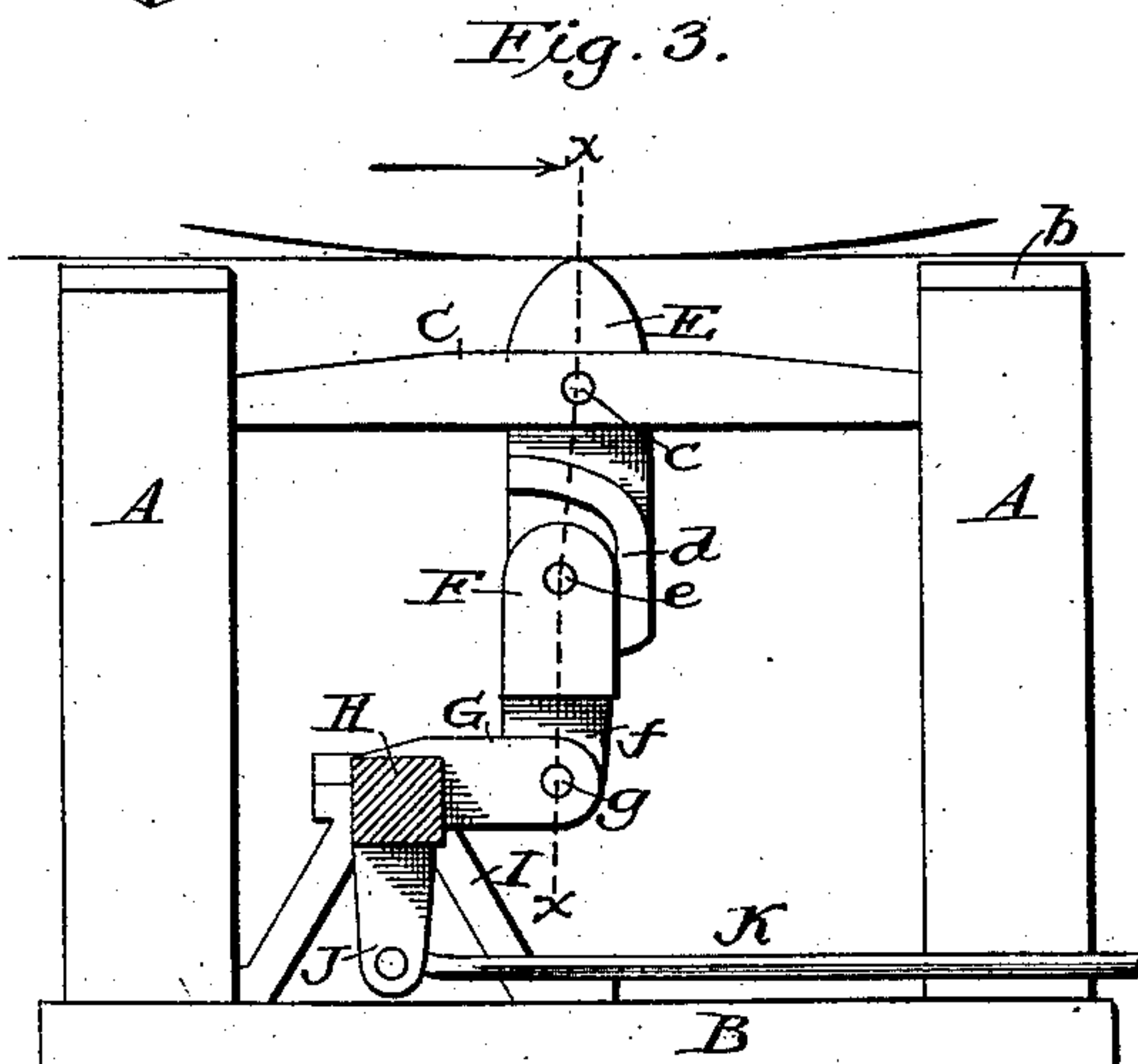
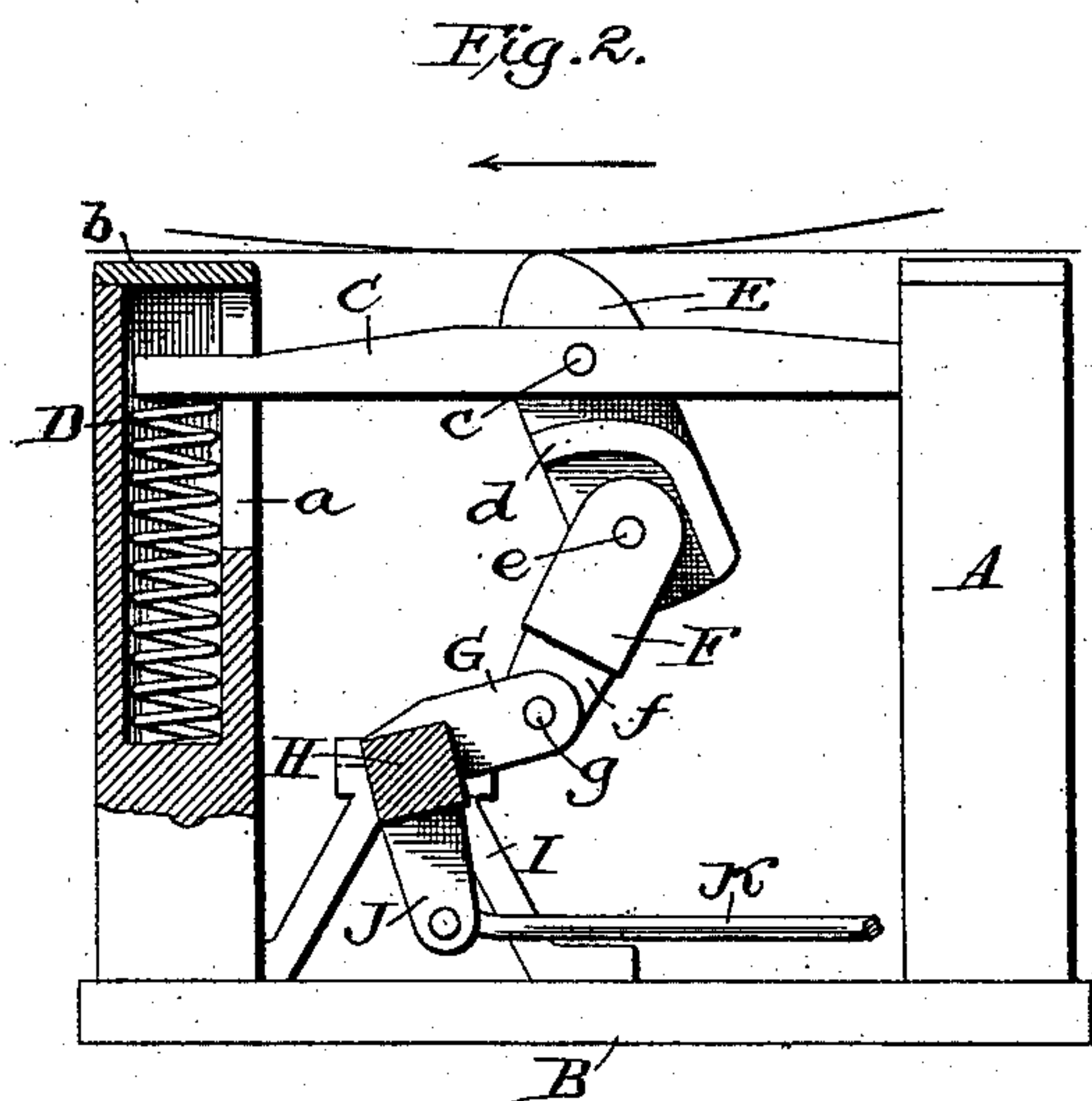
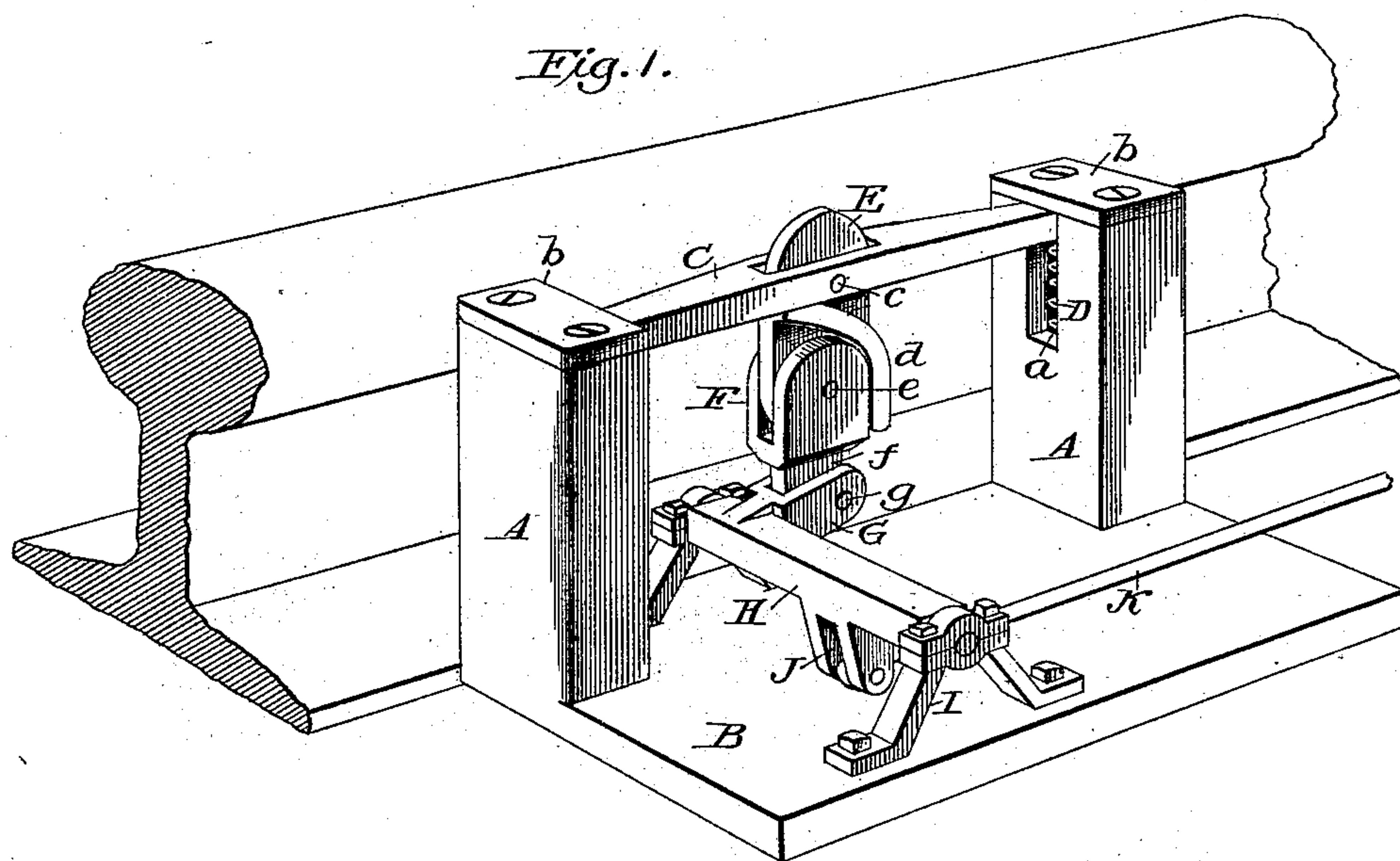


(No Model.)

A. B. BLACKBURN.  
RAILWAY SIGNAL.

No. 376,362.

Patented Jan. 10, 1888.



Witnesses  
James F. Duhamel  
William H. Shipley

Inventor:  
*Albert B. Blackburn,*  
 By his Attorneys,  
*Wodgett & Sons.*



# UNITED STATES PATENT OFFICE.

ALBERT B. BLACKBURN, OF SPRINGFIELD, OHIO, ASSIGNOR OF ONE-HALF  
TO JOHN E. EHRENHART, OF SAME PLACE.

## RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 376,362, dated January 10, 1888.

Application filed August 10, 1887. Serial No. 246,592. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT B. BLACKBURN, of Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Railway-Signals, of which the following is a specification.

My invention relates to railway-signals, and has reference more particularly to that class in which the signal is operated by the wheel or wheels of the train.

The present invention is designed as an improvement on that for which Letters Patent of the United States No. 309,517 were issued to me December 23, 1884.

In the drawings, Figure 1 is a perspective view of my invention in place beside the rail of a track; Figs. 2 and 3, side views showing the device in different positions, and Fig. 4 a vertical sectional view on the line *xx* of Fig. 3.

A A indicate two upright hollow posts secured rigidly to a base-block, B, the said posts being provided in their opposing faces each with a slot, *a*, as clearly shown in Figs. 1 and 2.

C indicates a cross-bar, which passes at its ends into the slots *a* of the posts A, the said cross-bar resting upon springs D, which latter are seated in the hollow upper ends of the posts A, as also shown in Figs. 1 and 2.

In the drawings I have shown the springs D as being ordinary coil-springs; but it is obvious that in lieu of these springs rubber blocks or other forms of springs might be substituted, but not to so good advantage. In order to prevent the springs from raising the cross-bars C out of the slots in the posts, the latter are provided with cap-plates *b*, as shown in Figs. 1, 2, and 3. At or about the middle of cross-bar C the latter is slotted, as shown, to receive a trip, E, which latter is pivoted to the cross-bar by means of a pin, *e*, as shown in all the figures. The form of the slot in the cross-bar C should be such as to permit the trip E to rock or oscillate freely upon its pivot *e*. As shown in all the figures, the trip E is provided on each flat side or face with a flange or rib, *d*, which extends from the lower edge of the trip upward along the rear edge for a short distance.

Pivotally secured to the lower end of the trip E is a block, F, which is forked at its upper end and embraces the lower end of the trip,

the said block being attached to the trip E by means of a pin or bolt, *e*, which passes through the trip E and through the ears of the block F that embrace the trip. This block is provided with a depending lug, *f*, as shown in all the figures, which is pivotally connected, by means of a pin or bolt, *g*, to a radial forked arm, G, secured to a rock-shaft, H. The rock-shaft H is journaled at opposite ends in brackets or supports I, which are secured to the base-plate B, and the said rock-shaft is provided with a second radial arm, J, at right angles, or substantially so, to arm G.

When the parts are in their normal positions, as indicated in Figs. 1 and 3, the pivots *e*, *e*, and *g* are nearly in line vertically with one another, and it will be noticed that when in this position the rear face of the block F lies against the flanges *d* of the trip E.

The rock-shaft H is connected, by means of a rod, K, with any suitable signaling mechanism, which may be the same as that represented in my Letters Patent hereinbefore referred to, or of any other desired construction; but as said signaling apparatus forms no part of the present invention it is not shown. Now, if a train should move in the direction indicated by the arrow in Fig. 2, the wheel of the car would strike the inclined or beveled nose of the trip E, and rock or tip the trip E upon its pivot *e*, causing the lower end of the said trip to swing rearwardly, so as to move its flange *d* out of contact with the rear face of the block F. During this movement of the trip E the cross-bar C, to which the block is attached, is depressed, the springs D, beneath the ends of the cross-bar C, being compressed so as to allow the trip E to be moved below the top of the rail. As the cross-bar C is thus depressed and the trip E is rocked or tipped, the upper end of the block F swings rearwardly from or upon the pin or bolt *g* as a center, and without disturbing in the slightest degree the rock-shaft H, with which said block is connected. Of course as the rock-shaft H is not disturbed no signal will be displayed or operated. Should, however, a train come from the opposite direction, as indicated by the arrow in Fig. 3, the wheel striking against the upper end of the trip E would tend to throw the lower end of the trip forwardly; but as the



flange *d* bears against the rear face of the block *f*, such movement of the trip is prevented, and the trip *E* and block *F* practically converted into a single block, and have no movement  
 5 relatively to each other. Such being the case, when the trip *E*, and with it the cross-bar *C*, is depressed by the wheels of the train, the downward movement of the trip and the block *F* causes, through the arm *G*, the rocking of the  
 10 shaft *H* in its bearings. As the shaft is thus rocked the rod *K*, connected with the signaling device, is moved longitudinally and the signal operated. As soon as the train has passed, the springs *D*, acting through the cross-  
 15 bar *C*, return the parts to their normal positions.

The construction above described is applicable to or is designed for use upon single-track railways, where it is desired that a sig-  
 20 nal should be given by trains coming from one direction; but should it be desired to have the signal operated by trains passing in either direction, it is only necessary to apply the mechanism shown in the drawings to both rails of  
 25 the track.

It is not necessary that the upper end of the block *F* should be forked; but I prefer to construct it in this manner, for the reason that it enables me to get a firm bearing against the  
 30 flange *d* on both faces of the trip *E*, instead of upon one face only.

It is obvious, also, that instead of having cross-bar *C* rest upon springs it may be suspended by springs from the upper ends or caps  
 35 of the posts *A*. This being merely a reversal of the arrangement shown, it is not deemed necessary to illustrate it.

Having thus described my invention, what I claim is—

40 1. In combination with a spring-sustained cross-bar, *C*, a trip, *E*, pivoted therein, a rock-shaft, *H*, connected with a signal, and a link, *F*, pivotally connected with the trip and with the rock-shaft, all substantially as shown,  
 45 whereby when the trip is struck by a wheel moving in one direction it will merely rock without operating the signal, but when struck by a wheel moving in the reverse direction it will serve to operate the signal.

50 2. In a railway signal apparatus, the combination, with a spring-supported cross-bar, *C*, of a rock-shaft, *H*, a rod, *K*, connecting said rock-shaft with a signal, and a jointed trip, *E* *F*, the latter being pivotally connected, re-

spectively, with the cross-bar and the rock- 55 shaft and pivotally connected with each other.

3. In a railway signal apparatus, the combination, with a spring-sustained cross-bar, of a rock-shaft, a rod connecting said rock-shaft with a signal, and a trip pivoted in the cross- 60 bar and connected with the rock-shaft by means of a knuckle-joint, whereby the trip is permitted to actuate the signal only by a train moving in one direction.

4. In combination with base-block *B*, up- 65 right hollow posts *A*, provided each with a slot, *a*, cross-bar *C*, projecting into or through the slots, springs *D*, beneath the ends of the cross-bar, a trip, as *E*, pivoted to the cross- 70 bar, a rock-shaft journaled in bearings upon the base-plate, and a block, as *F*, connecting the pivoted trip with the rock shaft, all substantially as shown.

5. In combination with base-block *B*, provided with upright posts *A*, springs *D*, 75 mounted in said posts, a cross-bar, *C*, sustained by said springs, a rock-shaft, *H*, journaled in bearings upon the base-block and provided with radial arms *G* and *J*, a rod, *K*, connecting said rock-shaft with a signal, a trip, *E*, 8c pivoted in the cross-bar, and a link or block, *F*, connected at opposite ends with the trip *E* and arm *G*, all substantially as shown.

6. In combination with base-block *B*, hollow posts *A*, cross-bar *C*, and springs *D*, ar- 85 ranged substantially as shown, a rock-shaft, *H*, journaled in bearings upon the base-block and connected with a signal, a trip, *E*, provided on the rear edge with a flange or rib, *d*, and a block, *F*, connecting the rock-shaft with 90 the trip and arranged to bear on its rear face against the flange *d*.

7. In combination with base-block *B* and hollow posts *A*, cross-bar *C*, and springs *D*, a rock-shaft, *H*, provided with an arm, *G*, and 95 connected with a signal, a trip, *E*, pivoted to the cross-bar by means of a pin or bolt, *c*, and a block, *F*, pivoted to the trip and arm *G*, respectively, by means of pins or bolts *e* *g*, the pivots *c*, *e*, and *g* being approximately in the 100 same vertical plane.

In witness whereof I hereunto set my hand in the presence of two witnesses.

ALBERT B. BLACKBURN.

Witnesses:

J. K. MOWER,

J. W. DEATON.